

AMENDMENTS TO THE CLAIMS

1-10 (Canceled)

11. (Previously presented) An improved gerotor pump of the type having a gerotor set comprising:

an inner rotor having N outwardly extending lobes with N approximately circularly shaped grooves therebetween being in mesh with and, in response to rotational motion of a drive shaft, rotationally driving an eccentrically disposed outer rotor about an eccentricity offset rotation axis located along a preferred eccentricity axis, the outer rotor being formed with $N + 1$ inwardly extending circularly shaped elements with $N + 1$ approximately circularly shaped grooves therebetween, whereby $N + 1$ pumping chambers are formed between the outwardly extending lobes of the inner rotor, the inwardly extending circularly shaped elements of the outer rotor and the grooves of either, a floating ring having a bore wherein the outer rotor is hydrodynamically supported for rotation, and a housing having an internal gerotor pump cavity and first and second housing ports located on opposite sides of the preferred eccentricity axis, wherein radial face slots are provided in at least one face of the outer rotor for fluidly coupling fluid with the $N + 1$ approximately circularly shaped grooves of the outer rotor respectively with first and second fluid commutation ports formed on opposite sides of the floating ring in a corresponding face or faces of the floating ring, further wherein the floating ring and the internal pump cavity have slidingly engaging floating ring and housing guide features for locating the floating ring such that the center of the floating ring bore is laterally located along the preferred eccentricity axis and the floating ring is oriented in the roll direction such that the first and

second fluid commutation ports are symmetrically located on either side of the preferred eccentricity axis, and still further wherein the first and second housing ports are located and formed within the housing in such a manner that first and second housing ports respectively fluidly communicate with the first and second fluid commutation ports and; means are provided for forcibly positioning the outer rotor along the eccentricity axis against the inner rotor at an in-mesh position of the gerotor set,

said means for forcibly positioning the outer rotor along the eccentricity axis against the inner rotor at the gerotor set's in-mesh position comprises means for selectively coupling fluid from the higher pressure valued one of the first and second housing ports to a selected portion of the outer periphery of the floating ring at a position juxtaposed to the gerotor set's in-mesh position, and concomitantly selectively coupling fluid from the lower pressure valued one of the first and second housing ports to a selected portion of the outer periphery of the floating ring at a position juxtaposed to the gerotor set's out-of-mesh position,

12-13 (Canceled)

14. (Previously presented) An improved gerotor pump of the type having a gerotor set comprising an inner rotor having N outwardly extending lobes with N approximately circularly shaped grooves therebetween being in mesh with and, in response to rotational motion of a drive shaft, rotationally driving an eccentrically disposed outer rotor about an eccentricity offset rotation axis located along a preferred eccentricity axis, the outer rotor being formed with $N + 1$ inwardly extending circularly shaped elements with $N + 1$ approximately circularly shaped

grooves therebetween, whereby $N + 1$ pumping chambers are formed between the outwardly extending lobes of the inner rotor, the inwardly extending circularly shaped elements of the outer rotor and the grooves of either, a floating ring having a bore wherein the outer rotor is hydrodynamically supported for rotation, and a housing having an internal gerotor pump cavity and first and second housing ports located on opposite sides of the preferred eccentricity axis, wherein radial face slots are provided in at least one face of the outer rotor for fluidly coupling fluid with the $N + 1$ approximately circularly shaped grooves of the outer rotor respectively with first and second fluid commutation ports formed on opposite sides of the floating ring in a corresponding face or faces of the floating ring, further wherein the floating ring and the internal pump cavity have a slidingly engaging floating ring and housing guide features for locating the floating ring such that the center of the floating ring bore is laterally located along the preferred eccentricity axis and the floating ring is oriented in the roll direction such that the first and second fluid commutation ports are symmetrically located on either side of the preferred eccentricity axis, still further wherein the first and second housing ports are located and formed within the housing in such a manner that the first and second housing ports respectively fluidly communicate with the first and second fluid commutation ports, and yet still further wherein a piston means bearing against the floating ring at a position juxtaposed to the gerotor set's in-mesh position is utilized for forcibly positioning the outer rotor along the eccentricity axis against the inner rotor at an in-mesh position of the gerotor set.

15. (Canceled)

16. (Currently amended) An improved method for supporting a gerotor set in a gerotor pump comprising a housing having an internal gerotor pump cavity and first and second housing ports located on opposite sides of the preferred eccentricity axis, a gerotor set comprising inner and outer rotors, and a floating ring having a bore wherein the outer rotor is hydro-dynamically supported for rotation, the floating ring being positionally constrained for lateral location along the preferred eccentricity axis at a selected roll orientation, wherein the method comprises the steps of:

selectively coupling fluid from the higher pressure valued one of the first and second housing ports to a selected portion of the outer periphery of the floating ring at a position juxtaposed to the gerotor set's in-mesh position an in-mesh position of the gerotor set;

concomitantly selectively coupling fluid from the lower pressure valued one of the first and second housing ports to a selected portion of the outer periphery of the floating ring at a position juxtaposed to ~~an~~ the in-mesh position of the gerotor set; and

hydrostatically coupling those pressure values to selected portions of a space between the floating ring and the outer rotor, whereby the outer rotor is forcibly positioned against the inner rotor at the gerotor set's in-mesh position in-mesh position of the gerotor set.